FIG 1

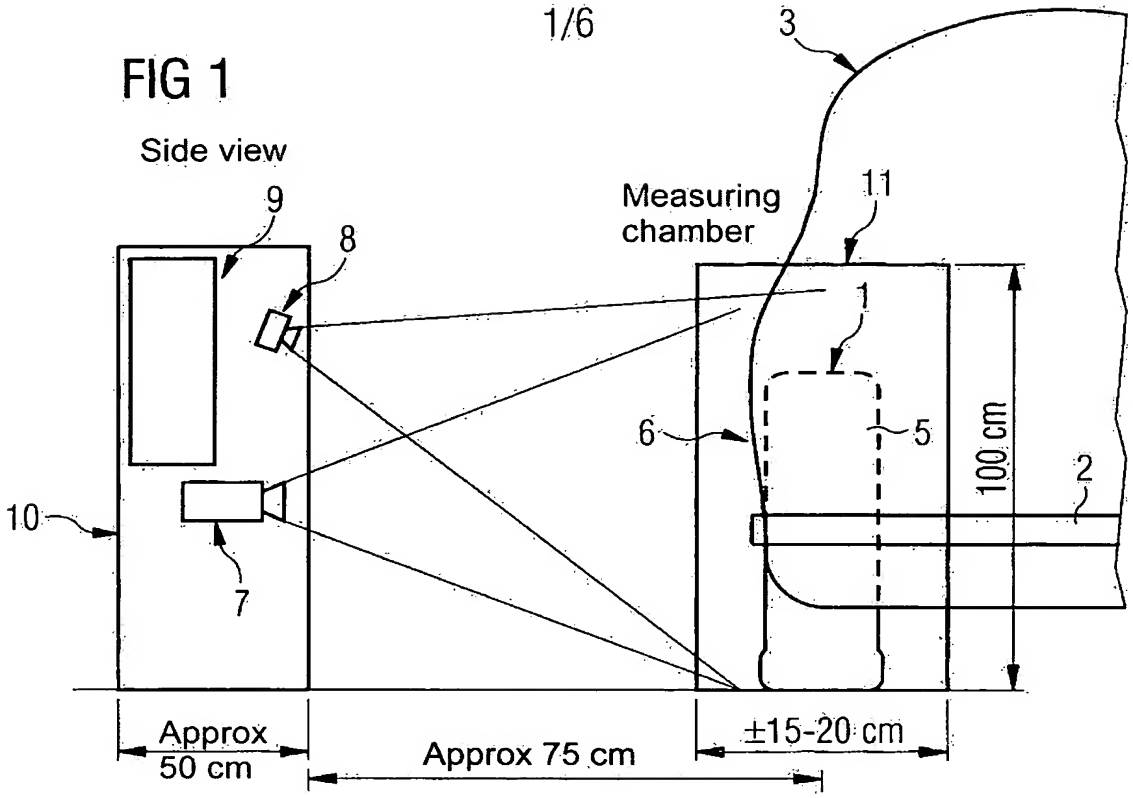

Side view
3
9
8
Measuring chamber
11
1
6
5
100 cm
2
10
7
Approx 50 cm
Approx 75 cm
±15-20 cm

FIG 2

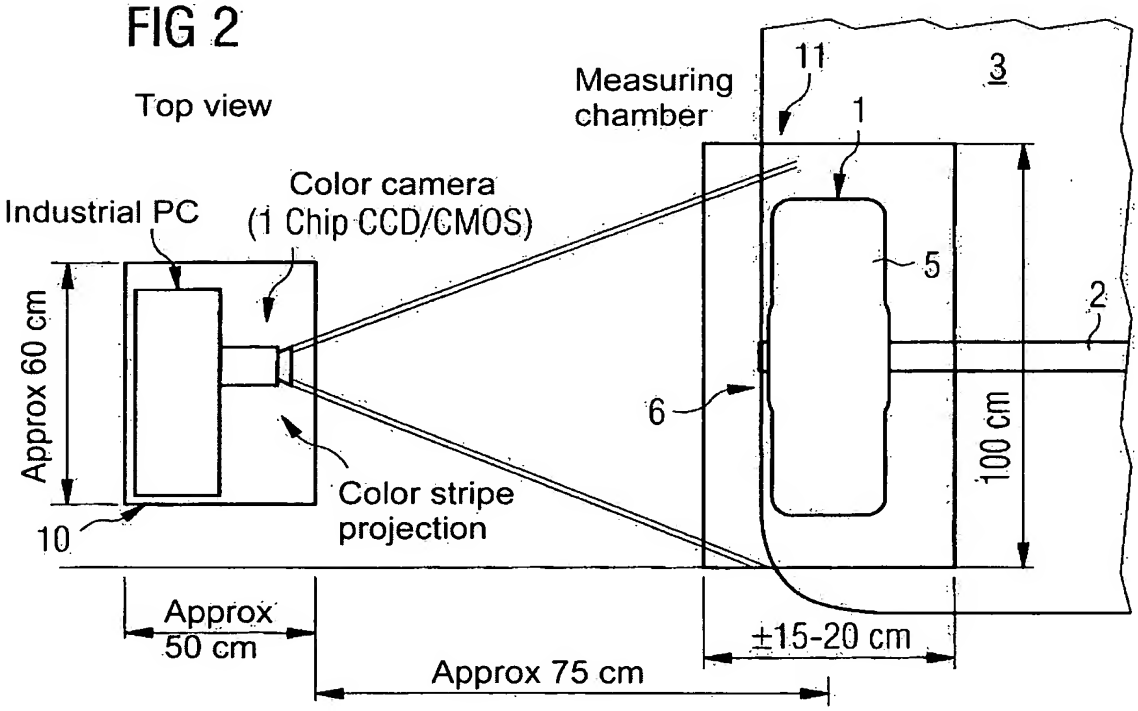
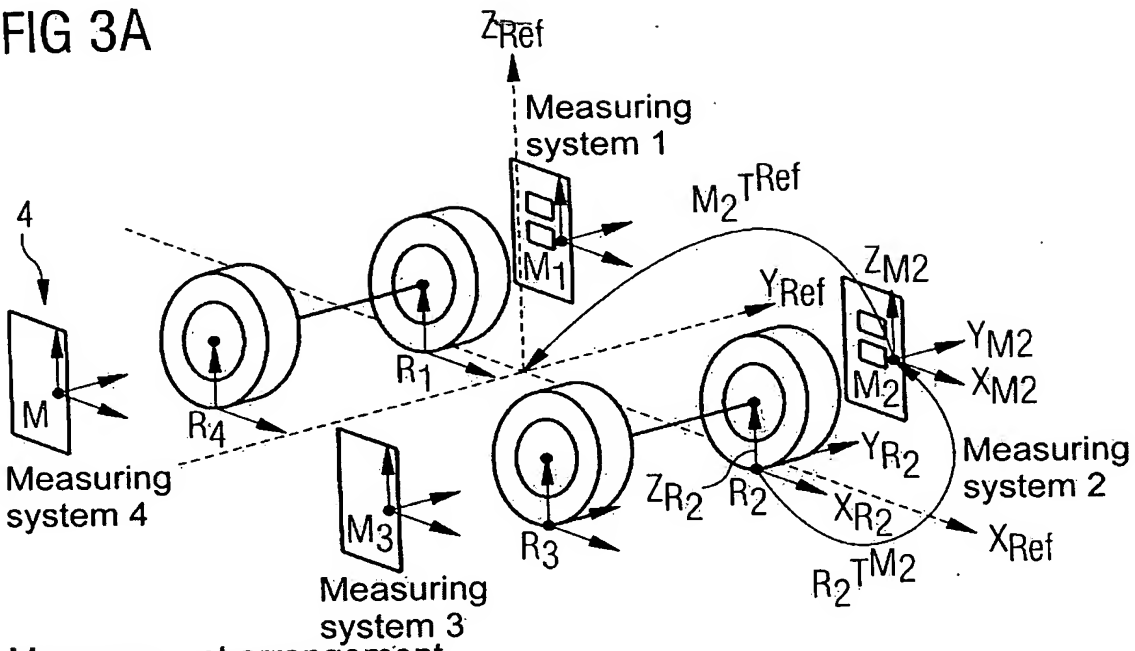

Top view
Measuring chamber
11
3
1
Industrial PC
Color camera (1 Chip CCD/CMOS)
5
2
Approx 60 cm
6
100 cm
Color stripe projection
10
Approx 50 cm
Approx 75 cm
±15-20 cm

FIG 3A



Measurement arrangement of entire system

M = Measuring system i

R = Tire system i

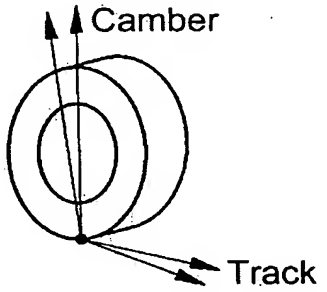
Ref = Reference system

Measurement: relation $R_i \rightarrow M_i$ (R_iT^{Mi})

Calibration: relation $M_i \rightarrow Ref$ (M_iT^{Ref})

$\rightarrow$ Relations $R_i \rightarrow Ref$ $(R_iT^{Mi}\ M_iT^{Ref})$

FIG 3B



RELATED ART

FIG. 4A

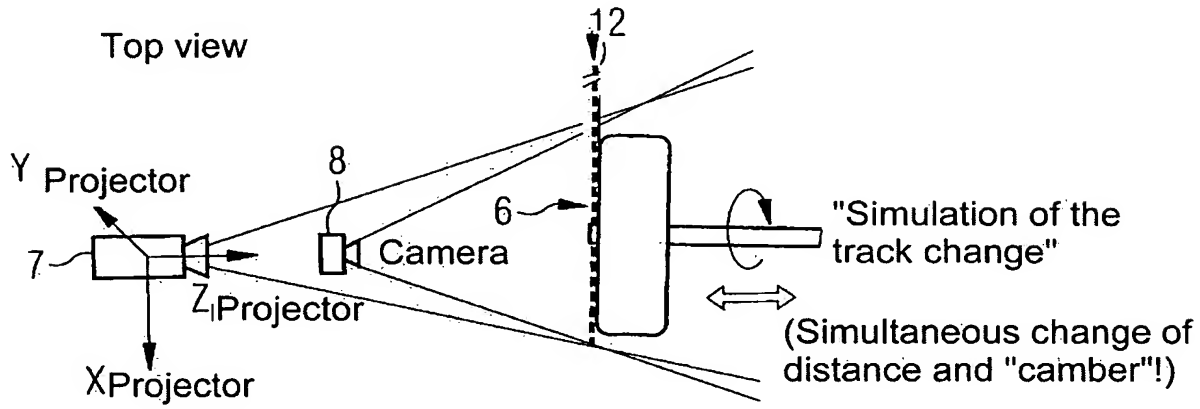
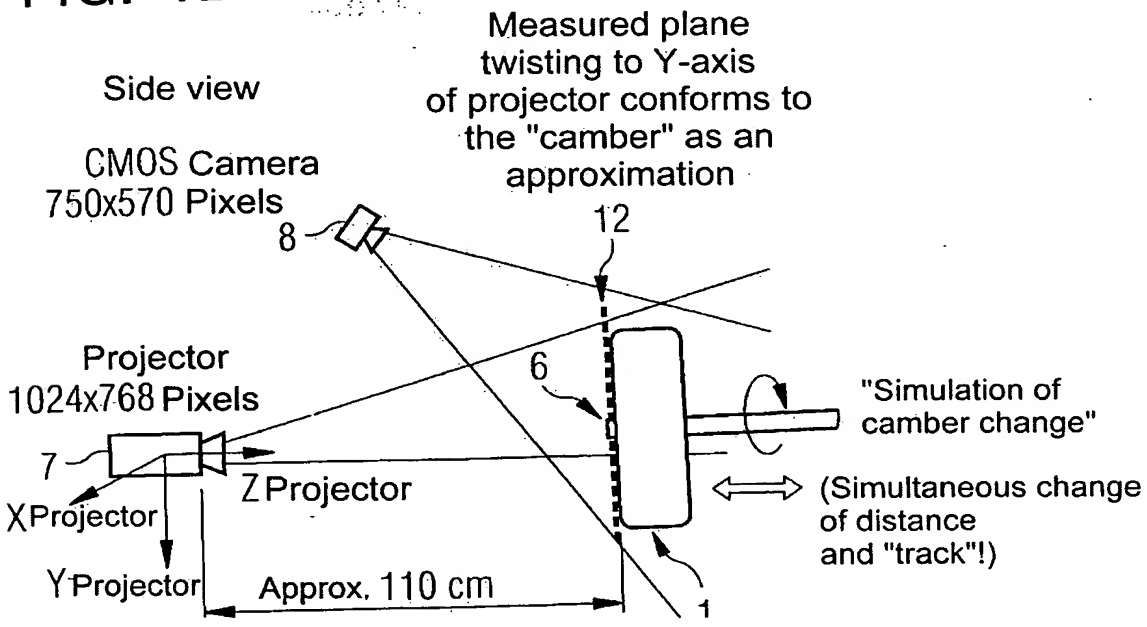

Measured plane
Twisting to X-axis
of projector conforms to the
"track" as an approximation
Top view
12
Y Projector
8
6
"Simulation of the
track change"
7
Camera
Z Projector
(Simultaneous change of
distance and "camber"!)
X Projector

FIG. 4B


Measured plane
twisting to Y-axis
of projector conforms to
the "camber" as an
approximation
Side view
CMOS Camera
750x570 Pixels
8
12
Projector
1024x768 Pixels
6
"Simulation of
camber change"
7
Z Projector
(Simultaneous change
of distance
and "track"!)
X Projector
Y Projector
Approx. 110 cm
1

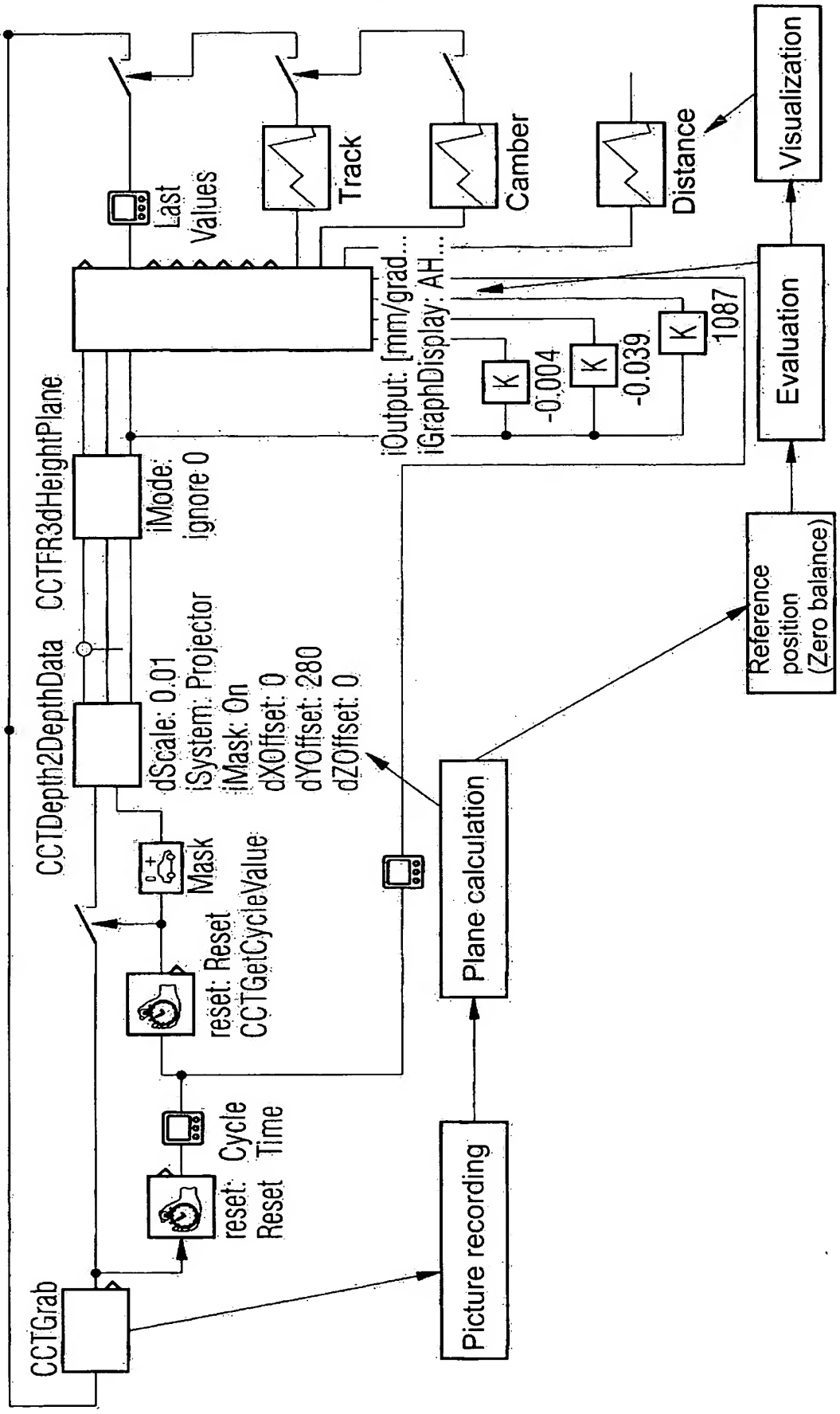

CCTGrab
CCTDepth2DepthData
CCTFR3dHeightPlane
dScale: 0.01
iSystem: Projector
iMask: On
dXOffset: 0
dYOffset: 280
dZOffset: 0
iMode:
ignore 0
Mask
reset: Reset
CCTGetCycleValue
Cycle Time
reset: Reset
Last Values
Track
Camber
Distance
iOutput: [mm/grad...
iGraphDisplay: AH...
K
-0.004
K
-0.039
K
1087
Visualization
Evaluation
Reference position (Zero balance)
Plane calculation
Picture recording

FIG 5

FIG 6

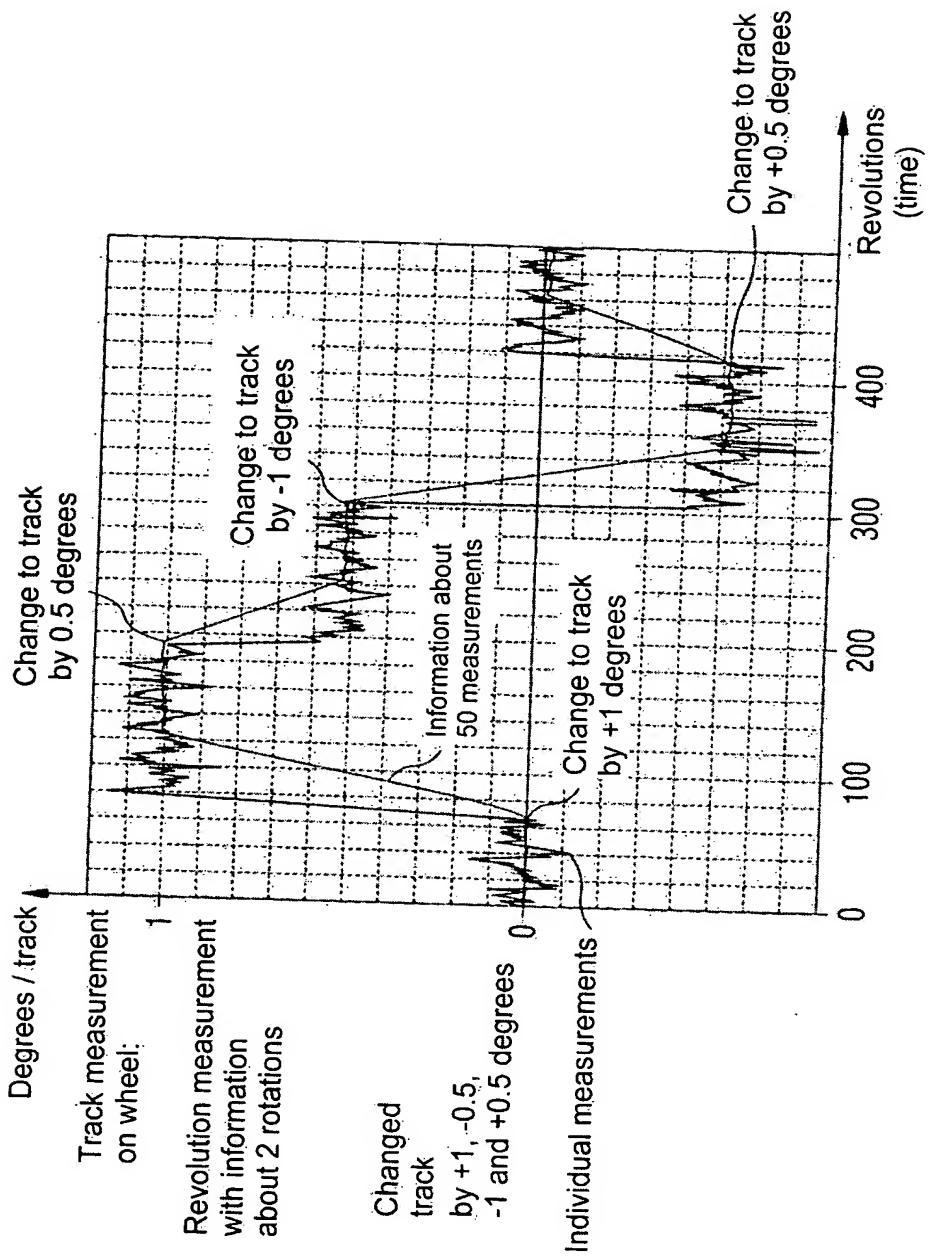

Degrees / track
Track measurement on wheel:
Revolution measurement with information about 2 rotations
Changed track by +1, -0.5, -1 and +0.5 degrees
Individual measurements
1
0
0
100
200
300
400
Revolutions (time)
Change to track by 0.5 degrees
Change to track by -1 degrees
Information about 50 measurements
Change to track by +1 degrees
Change to track by +0.5 degrees

FIG 7 RELATED ART

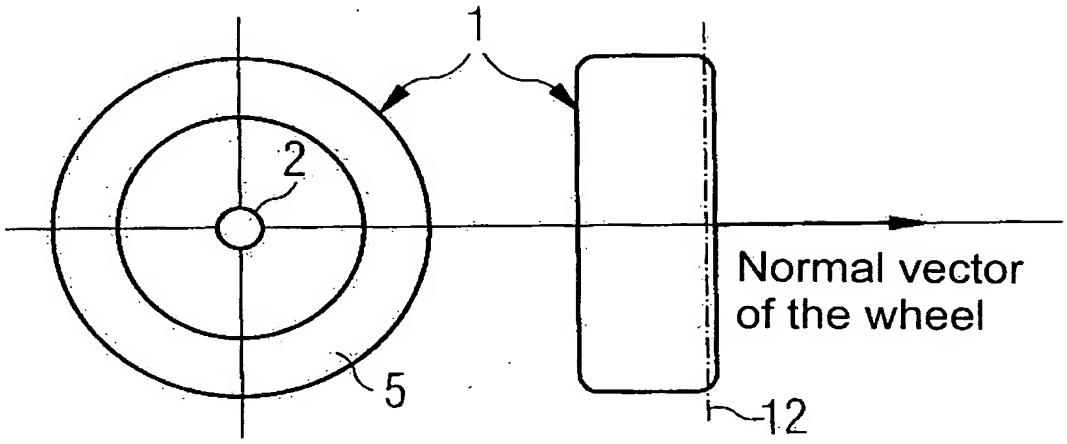


FIG 8 RELATED ART